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(54) **Title:** ARRAYS OF ELECTRODES COATED WITH MOLECULES AND THEIR PRODUCTION

(57) **Abstract:** The present invention provides a method of forming coatings of at least two different coating molecules on at least two electrodes, the method comprising: (a) providing an array of at least two individually-addressable electrodes, (b) allowing a layer of a masking molecule to adsorb onto all electrodes, (c) inducing electrochemical desorption of the masking molecule from at least one but not all electrodes to expose a first set of exposed electrodes, (d) allowing a first coating molecule to adsorb onto the first set of exposed electrodes, (e) exposing all electrodes to a masking molecule to allow adsorption of the masking molecule onto all electrodes, (f) inducing electrochemical desorption of masking molecule from a second set of electrodes to expose a second set of exposed electrodes, (g) allowing a second coating molecule to adsorb onto the second set of exposed electrodes.